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EXAMINER

HUNG, YUBIN

ART UNIT PAPER NUMBER

2624

DATE MAILED: 04/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/030,832

Applicant(s)

MEYER ET AL.

Examiner

Yubin Hung

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14, 15 and 20 is/are allowed.
- 6) ☒ Claim(s) 8-10, 12/8, 12/9/8, 12/10/8, 13 and 16-19 is/are rejected.
- 7) ☒ Claim(s) 11 and 12/11/8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 March 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1/10/02, 4/11/02.
- 4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Response to Amendment/Arguments

1. This action is in response to amendment filed 03/14/06, which has been entered.
2. Claims 1-7 have been cancelled. Claims 8-20 are still pending.
3. In view of Applicant's amendment, the objection to the specification has been withdrawn. However, the objection to the drawings is maintained since no response has been received.
4. In view of Applicant's amendment, claims 14, 15 and 20 have been allowed.
5. Since claim 11 has not been amended or rewritten in independent form as suggested in the Office Action mailed 09/14/05, the objection of claims 11 and 12 (as dependent from claim 11) is maintained. Note that claim 12 has **not** been amended as Applicant asserted in P. 12, 2nd paragraph, lines 3-4.
6. Applicant's arguments filed 03/14/06 have been fully considered but they are not persuasive; see below.
7. **In remarks Applicant argued in substance:**

Note: In subsequent discussions “at least a *larger* part” in the last two lines of both amended claims 13 and 19 will be interpreted as “at least a *large* part” per the support in lines 3-4 of page 4 of the specification, as Applicant indicates in the first paragraph of page 13 of the response filed 3/14/06.

- 1.1 (Re claims 8, 9, 13 and 19) *that Hall and Wirtz are not combinable because Hall teaches the use of difference between pictures while Wirtz teaches using correlation, which are opposite approaches (P. 13, paragraphs 3 & 4)*

However, as indicated in the rejection of the above claims, both difference and correlation are a similarity measure: the smaller the difference, the more similar the pictures; on the other hand, the larger the correlation, the more similar the pictures. Therefore, Hall and Wirtz are combinable.

- 7.2 (Re claims 13 and 19) *that the new feature in amended claims 13 and 19 are not disclosed in Hall or Wirtz or other references cited in the previous Office Action (P. 13, last paragraph-P. 14, 2nd paragraph; note that claims 8 and 9 have not been similarly amended to include the new feature as asserted)*

However, the new feature in claims 13 and 19 is the addition of the limitation “the whole edge image or at least a large part of the whole edge image” (with the underlined text being the only change to the claim language). Since the region

being monitored can be considered a large part of the whole (edge) image, the analyses of claims 13 and 19 in the Office Action mailed 09/14/05 still apply.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claims 13 and 16-19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Specifically, claim 13 (and similarly claim 19) has been amended to include the limitation "at least a *larger* part of the whole edge image" in the last two lines. The support indicated by Applicant in the first paragraph of page 13 of the 3/14/06 response at most states "in a *large* part of the viewfield" (P. 4, lines 3 and 4 of the specification). Dependent claims 16-18 inherit the same problem and are similarly rejected. **[Note: Per page 4, lines 3 and 4 of the specification, for examination purpose "larger" will be interpreted as "large."]**

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 13 and 16-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

12. Regarding claim 13 (and similarly claim 19), the phrase "at least a larger part of the whole edge image" renders the claim(s) indefinite because "larger" is a relative term and it is not clear what this "larger part" is comparing to, thereby the scope of the claim(s) is rendered unascertainable. Dependent claims 16-18 inherit the same problem and are similarly rejected. **[Note: Per page 4, lines 3 and 4 of the specification, for examination purpose "larger" will be interpreted as "large."]**

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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14. Claims 8-10, 12 (the versions dependent from claims 8, 9 or 10), 13 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hall et al. (GB 2,150,724A), and in view of Wirtz et al. (US 6,507,660).

15. Regarding claim 19 (as interpreted), and similarly claims 8, 9 and 13 (as interpreted), Hall discloses

- means for generating a current image in a view field
[Fig. 1, ref. A; P. 1, lines 33-35, 84-87]
- means for establishing a *current image* detected in the view field and a *reference image*
[Fig. 1, refs. A & 8; P. 1, lines 33-38, 84-87, 110-112]
- means for calculating a *similarity measurement* for at least one region of the *current image* and a corresponding partial image of the *reference image*
[Fig. 1, refs. 5; P. 1, lines 39-41, 60-63, 108-111. Note that the comparison means calculates a difference (a similarity measurement) between non-excluded areas of the two images]
- means for identifying a change of the at least one region when the *similarity measurement* falls below a threshold value
[Fig. 1, refs. 6 & 24; P. 1, lines 41-44, 112-114. Note that "difference" is the opposite of "similarity" (e.g., correlation); therefore in determining whether a change has occurred the respective "directions" of the comparison with a threshold are also the reverse of each other (i.e., greater than the threshold in the case of difference and smaller in the case of similarity)]
- means for outputting an alarm signal when the at least one region is identified as changed for a predetermined time interval that is longer than a corresponding time interval that the *current image* is detected to be changed
[Fig. 1, refs. 18 & 19 (alarm indicator); P. 1, lines 53-56; P. 2, lines 96-102]
- wherein said means for generating said current image comprises a stationary image capturing device, said means for calculating said correlation value comprises a computer for processing image data and aid computer includes means for testing whether or not said *similarity measurement* is above or below said threshold value in order to identify said change
[Fig. 1, ref. A and P. 1, lines 33-35 (image capturing device); P. 1, line 94-P. 2, line 7. Note that the electronic control system is considered a computer]

Hall does not expressly disclose that the change detection is based on the correlation (the *similarity measure*) of the whole edge images (or at least a large part of the whole edge images) derived from the current image and the reference image.

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However, Wirtz teaches correlating the edge images corresponding to an acquired image and a reference image in order to determine the similarity of the two images.

[See Fig. 4; Col. 4, lines 57-67. Note that "similar" is equivalent to "little change."]

Hall and Wirtz are combinable because they have aspects that are from the same field of endeavor of patten matching.

At the time of the invention, it would have been obvious to modify Hall with the teachings of Wirtz by correlating edge images in order to determine whether change has occurred. The motivation would have been to improve accuracy as well as the processing speed by facilitating real-time implementation, as Wirtz indicates in column 1, lines 41-52.

Therefore, it would have been obvious to combine Wirtz with Hall to obtain the invention as specified in claim 19.

16. Regarding claim 10, since an alarm is output if the duration of the change is greater than T1, it is inherent that an alarm will also be output during

$T1 \leq T2 \leq T1 + d$, where d is the duration of the alarm.

17. Regarding claim 12, Hall further discloses

- the image capturing device is a video camera
[Fig. 1, ref. A; P. 1, lines 85-86]

18. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hall et al. (GB 2,150,724A) and Wirtz et al. (US 6,507,660) as applied to claims 8-10, 12, 13 and 19, and further in view of Cayzac (US 4,236,180).

Regarding claims 16 and 17, the combined invention of Hall and Wirtz discloses all limitations of their predecessor claim 13.

The combined invention of Hall and Wirtz does not expressly disclose

- (claim 16) positioning said stationary image capturing device so that an object to be monitored is in said view field and said variations include motions of said object or changes in said object
- (claim 17) said object is an exhibited object in a museum

However, Cayzac teaches positioning a camera in a museum to observe motions in such a way that its field of view includes valuable exhibited objects and their immediate surroundings. [Col. 3, lines 13-21.]

The combined invention of Hall and Wirtz is combinable with Cayzac because they have aspects that are from the same field of endeavor of video surveillance.

At the time of the invention, it would have been obvious to modify the combined invention of Hall and Wirtz with the teachings of Cayzac by positioning a camera in a museum to observe motions in such a way that its field of view includes valuable

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exhibited objects and their immediate surroundings. The motivation would have been to provide increased security to a museum without the need of adding more guards (and possibly can eliminate some and therefore lower the cost), as indicated by Cayzac in column 1, lines 51-57.

Therefore, it would have been obvious to combine Cayzac with Hall and Wirtz to obtain the inventions as specified in claims 16 and 17.

19. Claim 18 rejected under 35 U.S.C. 103(a) as being unpatentable over Hall et al. (GB 2,150,724A) and Wirtz et al. (US 6,507,660) as applied to claims 8-10, 12, 13 and 19, and further in view of Ishida et al. (US 5,745,160).

Regarding claim 18, the combined invention of Hall and Wirtz discloses all limitations of its predecessor claim 13.

The combined invention of Hall and Wirtz does not expressly disclose

- (claim 16, parent of claim 18) positioning said stationary image capturing device so that an object to be monitored is in said view field and said variations include motions of said object or changes in said object
- (claim 18) said object is an automatic teller machine and said at least one region includes at least one of a keypad field, a cash distribution slot and a card slot of the automated teller machine

However, Ishida teaches positioning a camera in such a way that the whole interior of a facility, including an ATM, is within its field of view. [Fig. 2, refs. 12 & 111; Col. 5, lines

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54-65. Note that an ATM typically includes a keypad, a cash distribution slot and a card slot; any changes (e.g., a card being inserted) obviously will be captured by the camera. Note further that this ATM is an automatic teller machine, as is correctly described in column 13, last line).]

The combined invention of Hall and Wirtz is combinable with Ishida because they have aspects that are from the same field of endeavor of video surveillance.

At the time of the invention, it would have been obvious to modify the combined invention of Hall and Wirtz with the teachings of Ishida by positioning a camera in such a way that the whole interior of a facility, including an ATM, is within its field of view. The motivation would have been to provide the capability to capture aspects of ATM transactions (among other things) for security and diagnostics purposes.

Therefore, it would have been obvious to combine Ishida with Hall and Wirtz to obtain the invention as specified in claim 18.

Allowable Subject Matter

20. Claims 14, 15 and 20 are allowed.

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21. Claims 11 and 12 (the version that is dependent from claim 11, referred to as claim 12/11/8 to reflect the path from its corresponding independent claim) are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

22. The following is a statement of reasons for the indication of allowable subject matter:

22.1 Regarding claim 14, and similarly claims 11 and 20, the combined invention of Hall and Wirtz discloses all limitations of its parent, claim 13. In addition, closest art of record Gonzalez et al. (*Digital Image Processing*, 1st ed., 1993, pp. 583-585) discusses the effect of intensity on the value of correlation between two images and discloses an approach to overcome the problem [p. 584]; Muraka (US 6,463,432), on the other hand, discloses using the sum of squared difference (a kind of quadratic deviation measurement) as a similarity measurement [Fig. 25, refs, S3503, S3504; Col. 19, line 57-Col. 20, line 2]. However, none of these references teaches or suggests removing effect of the brightness difference from the correlation calculation *after* an initial correlation

Conclusion and Contact Information

Conclusion

23. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yubin Hung whose telephone number is (571) 272-7451. The examiner can normally be reached on 7:30 - 4:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu can be reached on (571) 272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Yubin Hung
Patent Examiner
April 13, 2006

JINGGE WU
PRIMARY EXAMINER

A large, stylized handwritten signature in black ink, consisting of several overlapping loops and a long horizontal stroke extending to the right, is written over the printed name and title of the examiner.